

- C1  
Cont.
- b) depositing a second dielectric layer on the first dielectric layer, wherein the first and second dielectric layers comprise materials having dissimilar etching characteristics;
  - c) depositing a first mask layer on the second dielectric layer, wherein the first mask layer includes a first via pattern having a width T;
  - d) anisotropically etching the first via pattern through the second dielectric layer;
  - e) removing the first etch mask;
  - f) depositing a third dielectric layer on the second dielectric layer, wherein the second and third dielectric layers comprise materials having dissimilar etching characteristics and wherein the first and third dielectric layers comprise materials having similar etching characteristics;
  - g) depositing a second mask layer on the third dielectric layer, wherein the second mask layer includes a trench pattern overlaying the first via pattern and having a width P, such that T exceeds P;
  - h) anisotropically etching the trench pattern through the third dielectric layer, thereby forming (1) a first trench in the third dielectric layer and (2) a second via pattern;
  - i) anisotropically etching the second via pattern through the first dielectric layer, thereby forming a via hole extending to the interconnect line; and
  - j) anisotropically etching the first trench through the second dielectric layer, thereby forming a second trench extending through the second and third dielectric layers, wherein the via hole and second trench are adapted for fabricating a dual damascene structure.
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C2

11. (twice amended) The method of claim 1 additionally comprising simultaneously filling the second trench and the via hole with a conductive material, whereby a dual damascene structure is formed.

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C<sup>3</sup>

12. (once amended) The method of claim 11 wherein the conductive material comprises one or more materials selected from the group consisting of metallic superconductors and nonmetallic superconductors having zero direct current resistance at or below their superconducting transition temperature.

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13. (twice amended) A method of forming a structure on a substrate, the method comprising:

- C<sup>4</sup>
- a) forming a dielectric stack including an etch stop layer;
  - b) depositing a first mask layer on the etch stop layer wherein the first mask includes: (1) a first via pattern having a width WV1, (2) a second via pattern having a width WV2 and (3) a sacrificial etch pattern positioned between the first and second via patterns such that the sacrificial etch pattern has a width WS;
  - c) anisotropically etching the first and second via patterns through the etch stop layer thereby extending the first and second via patterns through the etch stop layer and forming a sacrificial etch segment by anisotropically etching the sacrificial etch pattern through the etch stop layer;
  - d) forming a first trench on the etch stop layer, such that the first trench does not overlay the sacrificial etch segment and wherein the first trench has a width WT1 that is narrower than WV1;
  - e) forming a second trench having a width WT2 on the etch stop layer, such that (1) the second trench does not overlay the sacrificial etch segment, (2) the sacrificial etch segment is positioned between the first and second trenches, (3) the distance between the first and second trench exceeds WS and (4) WT2 is narrower than WV2;
  - f) forming a first via hole underlying the first trench, such that the first via hole communicates with the first trench and with the first via pattern extending through the etch stop layer; and
  - g) forming a second via hole underlying the second trench, such that the second via hole communicates with the second trench and with the

c4

second via pattern extending through the etch stop layer, wherein: (1) the first trench and the first via hole, and (2) the second trench and the second via hole area adapted for forming a first dual damascene structure and a second dual damascene structure respectively.

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c5

15. (once amended) The method of claim 13 wherein the distance between the first and second trenches exceeds WS by at least  $0.02\mu$ .

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c6

19. (twice amended) A method of forming a structure on a substrate, the method comprising:

- a) depositing a first dielectric layer on the substrate;
- b) depositing a second dielectric layer on the first dielectric layer, wherein the first and second dielectric layers comprise materials having dissimilar etching characteristics;
- c) depositing a first mask layer on the second dielectric layer wherein the first mask includes: (1) a first via pattern having a width WV1, (2) a second via pattern having a width WV2 and (3) a sacrificial etch pattern positioned between the first and second via patterns such that the sacrificial etch pattern has a width WS;
- d) anisotropically etching the first and second via patterns through the second dielectric layer and forming a sacrificial etch segment by simultaneously anisotropically etching the sacrificial etch pattern through the second dielectric layer;
- e) removing the first mask layer;
- f) depositing a third dielectric layer on the second dielectric layer, wherein the second and third dielectric layers comprise materials having dissimilar etching characteristics;
- g) depositing a second mask layer on the third dielectric layer, wherein the second mask layer includes: (1) a first trench pattern overlaying the first via pattern and the third dielectric layer, and having a width WT1 and (2) a second trench pattern having a width WT2 overlaying the